
Soil testing your lawn and garden



Create a baseline and adjust as needed for top performance.

Soil testing in lawns and gardens is much the same as going to the family doctor for a general health checkup. It can call to your attention any major problems that need addressing, establish a baseline for future testing and should be done regularly.

It's neither complex nor terribly expensive. Test costs will vary depending on the desired results you are looking for. A basic test for pH, Phosphorus and Potassium can be in the \$25 - \$30 dollar range, more if you want to find out the percentage organic matter and levels of minor nutrients. Just one or a few samples may be all that's needed to evaluate a lawn or garden, says Richard Hentschel, University of Illinois horticultural extension educator. He recommends adding soil testing to your list of fall chores.

"In the fall, any inputs that have been applied during the growing season have reacted with the soil and will allow for a true reading of levels in the system," he says. "You want to test early enough so if you need to make amendments, especially lime, they have longer to react with the soil profile before the next growing season. Though it's fine to test in early spring as well, just be consistent."

Sampling The Garden

"When gardening, you're not only growing plants, you're harvesting the plants and their fruits which means you're depleting nutrients in the soil. Those nutrients end up in a tomato or a lettuce leaf or a cantaloupe and we remove it and consume it," Hentschel says. "If a garden is a heavy producer, over time you remove a significant number of nutrients and yields suffer. You need good levels of soil nutrition to get good yields and have a successful garden."

A soil test will report exactly where those deficiencies are. To gather garden soil samples, dig a small hole about 1-foot deep. Once the hole is dug, use a spade to peel off a slice of the edge of the hole collecting only the top 6 to 10-inches of the soil profile. Use care not to include any surface vegetation in the sample. Hentschel recommends taking multiple samples in this fashion from throughout the garden and mixing them together.

"In a 10X10 garden, for example, you want to move in from the corners and sides and take several samples. You might take soil from 3 to 5 areas in a garden this size to combine into one sample," he says.

For gardens, Hentschel recommends the basic soil test which will report levels of phosphorus and potassium as well as soil pH. If available, gardeners should also opt to get their percentage of soil organic matter. Organic matter indicates soil health and productivity. A higher percentage of soil organic matter will improve the soil's ability to hold water and nutrients, which can mean a garden better able to stand up to heat and drought stress. A low percentage of soil organic matter may indicate a need to add compost, mulch, or other organic matter to the system to improve garden performance

"If you only look at one item on the soil test, look at pH. If pH is outside the range of 6.0 - 7.0, that can limit nutrient availability to the plant. If soil is too acidic or alkaline, it may hold tightly to nutrients, not allowing them to transfer into the soil moisture and be available to the root," Hentschel says.

Garden soil pH levels should fall between 6 and 7. If a test reveals soils are acidic, lime can be applied. If it's alkaline, then acidifying agents, usually sulfur, can be applied.

When it comes to applying fertilizer, a soil test helps identify issues and prevent over application of nutrients not needed. "Phosphorus in a garden helps build healthy root systems and support flowering. Potassium relates to disease resistance. Those are necessary, but we don't want to apply them willy nilly. We want to customize our applications based on actual need," Hentschel says. "In my area there is generally plenty of phosphorus in the soil so there's no need to apply it. But until you test, you don't know."

He recommends getting a baseline soil test and then continue testing garden soils every 5 years to evaluate how gardening practices are affecting the soil health.

Sampling The Lawn

Especially if mulching grass clippings, a good portion of nutrients are staying in the system with a lawn as opposed to a vegetable garden that is harvested. Still, it's good to have a baseline to help guide fertilizer application and possibly pinpoint the cause of any problem areas.

"If you have a spot in your yard that's not doing well, soil testing to find out why is a great starting point," Hentschel says. Lawns are more likely to have a wide range of soil conditions. "You might have a spot next to the home where they piled the clay from digging out a basement, or an area where a tree was removed. The quality and consistency of the soil will vary."

Collect multiple soil samples representing different areas of the yard, including front and back, near the home, near the edges and any trouble spots. Sampling lawn soils is similar to collecting garden soil samples. Using a shovel or a special sampling tube, take a vertical sample of the soil profile.

"Lawn samples don't have to be quite as deep as garden samples, as the grass only grows in the

top 6 to 8 inches of the soil," Hentschel says. "Gather samples from every area you're concerned about and gather several samples within those areas to mix together."

He notes soil testing companies only need about a cup of soil to conduct the test but advises sending enough for them to retest if there's a problem.

A simple phosphorus and potassium plus pH soil test is fine for lawns, he says. Again, pH is important with the goal being levels between 6 and 7. Correct any issues a soil test reports and use the recommendations to dial in fertility. Retest every 5 years or as needed.

"A soil test really helps you dial in and maintain a nice lawn without always having to fertilize it," Hentschel says. "It lets you know exactly what you need to do to make your soil work better or helps identify if it's not the soil that's the problem at all. Sometimes lawn issues just come down to a simple mistake, such as cutting the grass too short. A soil test can reveal the actual nutrition problem."

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